

Application Serial No. 10/788,840
Date October 12, 2006
Reply to Office Action dated August 16, 2006

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Listing of the Claims:

1. (Currently amended) A method of automatically performing liquid microextraction analysis on a plurality of samples in separate vials comprising the steps of:
 - controlling movement of a syringe in multiple axes;
 - cleaning the syringe;
 - drawing a carrier solvent into the syringe;
 - moving the syringe to a sample vial;
 - inserting a tip of the syringe into the sample vial;
 - ~~collecting a portion of the sample in the syringe;~~
 - activating a syringe plunger to expel and hold a microdrop of the solvent on the tip of the syringe;
 - holding the microdrop on the tip of the syringe in the sample vial for a period of time to collect the sample material in a space above the sample in the vial;
 - drawing the microdrop and the collected portion of the sample into the syringe;
 - withdrawing the syringe from the sample vial;
 - moving the syringe to an instrument injector;
 - injecting the sample into the instrument injector for analysis of the sample; and
 - repeating the prior steps on each of the plurality of samples.
2. (Cancelled)
3. (Original) The method of claim 1 further comprising the step of:
placing a plurality of sample vials in a holder in established coordinate positions.
4. (Original) The method of claim 1 further comprising the step of:
providing a syringe cleaning solution in a known coordinate position.
5. (Original) The method of claim 4 wherein the step of cleaning the syringe comprises the steps of:
 - moving the syringe to the cleaning vial and withdrawing contents of the cleaning solution into the syringe; and

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expelling the cleaning solution from the syringe into a waste receptacle.

6. (Original) The method of claim 1 wherein the step of inserting the syringe into the sample vial further comprises the step of:

inserting the syringe into the sample vial to position the tip of the syringe in a head space above a liquid sample in the vial.

7. (Original) The method of claim 1 wherein the step of inserting the syringe into the sample vial further comprises the step of:

inserting the tip of the syringe into the liquid sample in the sample vial.

8. (Currently Amended) An apparatus for automatically performing liquid microextraction analysis of a plurality of samples in separate vials, the apparatus comprising:

means for controlling movement of a syringe in multiple axes;

means for cleaning the syringe;

means for drawing a carrier solvent into the syringe;

means for moving the syringe to a sample vial;

means for inserting a tip of the syringe into the sample vial;

means for collecting a portion of the sample in the syringe, the collecting means further comprising:

means for activating a syringe plunger to expel and hold a microdrop of the solvent on the tip of the syringe;

means for holding the microdrop on the tip of the syringe in the sample vial for a period of time to collect the sample material in a space above the sample in the vial;
and

means for drawing the microdrop and the collected portion of the sample into the syringe;

means for withdrawing the syringe from the sample vial;

means for moving the syringe to an instrument injector;

means for injecting the sample into the instrument injector for analysis of the sample.

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9. (Currently Amended) A method of automatically performing liquid microextraction analysis on a plurality of samples in separate vials comprising:

- controlling movement of a syringe and sample vial in multiple axes relative to one another;
- cleaning the syringe;
- drawing a carrier solvent into the syringe;
- moving the syringe and sample vial relative to one another;
- inserting a tip of the syringe into the sample vial;
- collecting a portion of the sample in the syringe;
- activating a syringe plunger to expel and hold a microdrop of the solvent on the tip of the syringe;
- holding the microdrop on the tip of the syringe in the sample vial for a period of time to collect the sample material in a space above the sample in the vial;
- drawing the microdrop and the collected portion of the sample into the syringe;
- withdrawing the syringe from the sample vial;
- moving the syringe and an instrument injector relative to one another;
- injecting the sample into the instrument injector for analysis of the sample; and
- repeating the prior steps on each of the plurality of samples.

10. (Cancelled)

11. (Currently Amended) The method of claim ~~1~~ 9 further comprising the step of:

- placing a plurality of sample vials in a holder in established coordinate positions.

12. (Currently Amended) The method of claim ~~1~~ 9 further comprising the step of:

- providing a syringe cleaning solution in a known coordinate position.

13. (Currently Amended) The method of claim ~~[[4]]~~ 12 wherein the step of cleaning the syringe comprises the steps of:

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moving the syringe and the cleaning vial relative to one another and withdrawing contents of the cleaning solution into the syringe; and expelling the cleaning solution from the syringe into a waste receptacle.

14. (Currently Amended) The method of claim 1 9 wherein the step of inserting the syringe into the sample vial further comprises the step of:

inserting the syringe into the sample vial to position the tip of the syringe in a head space above a liquid sample in the vial.

15. (Currently Amended) The method of claim 1 9 wherein the step of inserting the syringe into the sample vial further comprises the step of:

inserting the tip of the syringe into the liquid sample in the sample vial.